Shingles in Pregnancy: An Elusive Case of Left Upper Quadrant Abdominal Pain

Jennifer W.H. Wong MD; Jennifer M.Y. Chin MD; and Ryan J. Schlueter DO

Abstract

Pregnancy can complicate the presentation and workup of abdominal pain. A healthy 21-year-old gravida-3 para-1 woman at 34 weeks of gestation presented for severe pain localized to her abdominal left upper quadrant (LUQ). Physical exam was unremarkable except for localized pain on palpation, and she was discharged with acetaminophen and cyclobenzaprine for presumed musculoskeletal pain. The next day, she returned for worsening pain. An extensive workup including labs, electrocardiogram, chest x-ray, and abdominal computed tomography was unremarkable, and she was discharged with hydrocodone/acetaminophen. Later that evening, after two discharges, the patient presented for increased pain with new onset of vesicles in her left T6 dermatome. She was diagnosed with shingles, started on valacyclovir and gabapentin, and eventually went on to deliver a healthy infant. Shingles classically presents as excruciating pain followed by the eruption of vesicles. This case is important because it reviews the significance of shingles in pregnancy and is one of the first reports to extensively discuss the differential and workup of LUQ abdominal pain in pregnancy. Abdominal pain is a relatively common complaint during pregnancy, and a methodical approach should be taken when evaluating LUQ in pregnancy. Shingles could be considered in the differential diagnosis of pain of unclear origin.

Keywords

Abdominal pain, Varicella zoster virus, Herpes zoster, Obstetrics, Pregnancy

Abbreviations

VZV = Varicella zoster virus
LUQ = left upper quadrant
CBC = complete blood count
CMP = complete metabolic panel
EKG = electrocardiogram
CT = computed tomography
HELLP = hemolysis, elevated liver enzymes, and low platelet count

Introduction

Varicella zoster virus (VZV) is a herpes virus that causes chickenpox and shingles. Chickenpox results from a primary viral infection. Shingles, also known as herpes zoster, is a reactivation of latent virus in the dorsal root ganglia.[1,2] Pregnancy does not alter the incidence or severity of shingles.[2] Shingles affects all ages, with the highest incidence among people in their sixth decade of life, at an estimated 5-10 cases per 1,000 individuals.[1] The disease presents with prodromal pain, pruritus, or paresthesia, followed by the development of a unilateral vesicular rash in a dermatomal distribution.[1,2] The pain can be debilitating and precedes the rash by 48-72 hours.[1] In immunocompetent individuals, lesions will form for 3-5 days, and the entire disease course will last for 7-10 days.[1] Shingles is a clinical diagnosis that is exceedingly difficult to make prior to the onset of rash. If diagnosis is uncertain, vesicular lesions can be tested for the presence of VZV via polymerase chain reaction, direct fluorescent antibodies, or viral cultures.[1]

Treatment with antivirals (Table 1) decreases the duration and severity of the illness, in addition possibly decreasing the risk of postherpetic neuralgia.[3,4] Acute pain can be managed with acetaminophen, nonsteroidal anti-inflammatory drugs (NSAIDs), narcotics, and corticosteroids.[2,4] NSAIDs should be used with caution in pregnancies beyond 30 weeks of gestation due to the risk of premature closure of the fetal ductus ateriosus and development of oligohydramnios.[5-7] For postherpetic neuralgia, gabapentin and tricyclic antidepressants are the most efficacious long acting pain modulators.[3] Interestingly, a growing number of studies support the use of gabapentin during an acute attack in order to prevent the development of postherpetic neuralgia.[8,9]

Susceptible individuals can acquire VZV via direct contact of infected secretions. Lesions are considered infectious until they have crusted over. While an active chickenpox infection crosses the placenta and places the fetus at serious risk for congenital varicella syndrome, shingles rarely affects the fetus. For shingles, pre-existing maternal antibodies against the virus minimizes the viral load, therefore protecting the fetus during the viral reactivation.[10,11]

In 2006, the United States Food and Drug Administration released a vaccine for the prevention of shingles in people at least 50 years of age. This live, attenuated vaccine does not prevent chickenpox and is contraindicated in pregnant and immunocompromised individuals.[12] The American College of Obstetricians and Gynecologists recommends that non-pregnant women of reproductive age be counseled on the prevention of chickenpox. If the patient does not have a history of chickenpox, a history of vaccination, or serologic evidence of immunology, a two-dose live, attenuated varicella vaccination is recommended prior to conception or upon completion or termination of pregnancy.[13]

We report a case of shingles in pregnancy presenting as elusive left upper quadrant (LUQ) abdominal pain. In the past 10 years, a paucity of reports have been published on shingles in pregnancy, and this will be Hawaii's first-ever publication. This case is important because it reviews the significance of shingles in pregnancy and is one of the first reports to extensively discuss the differential and workup of LUQ abdominal pain in pregnancy. Abdominal pain is relatively common complaint during pregnancy, and LUQ pain diagnoses can be clinically difficult. A methodical approach should be taken when evaluating LUQ in pregnancy, and shingles could be considered in the differential diagnosis of pain of unclear origin.

Table 1. Antiviral Medications for Shingles. (Adapted from: Lexicomp, 2017 and www.goodrx.com)

Medication (Brand Drug)	Dosage for Immunocompetent Adults	Generic Drug Cost	Brand Drug Cost
Acyclovir (Zovirax)	800mg five times daily for 7 days	$12	$658
Famciclovir (Famvir)	500mg three times daily for 7 days	$25	$519
Valacyclovir (Valtrex)	1,000mg three times daily for 7 day	$20	$435

Table 2. Adverse Fetal Effects of Radiation. (Adapted from: Obstetrics: Normal and Problem Pregnancies, 2017 and Centers for Disease Control and Prevention, 2014.)

Gestational Age (weeks)	Minimum Radiation Dose (cGy)	Adverse Effects
0-4	5-20	Embryonal demise (all-or-none phenomenon)
5-8	20-50	Embryonal demise Congenital anomalies Intrauterine growth restriction Childhood cancer
9-15	6-50	Intrauterine growth restriction Microcephaly Severe intellectual disability Childhood cancer
>16	12-150	Intellectual disability Childhood cancer

Table 3. Estimated Fetal Radiation Doses from Imaging Studies. (Adapted from: Obstetrics: Normal and Problem Pregnancies, 2017.)

Imaging Study	Estimated Fetal Dose (cGy)
Chest radiograph, 2 views	0.0002
Abdominal radiograph	0.1-0.3
Chest computed tomography	0.002-0.02
Abdominal computed tomography	2.5-3.5
Ventilation scan	0.007-0.05
Perfusion scan	0.04
Intravenous pyelography	0.6-1.0
Positron emission scan	1.0-1.5
Barium enema	0.7

Case Presentation

A healthy 21-year-old gravida-3 para-1 woman at 34 weeks of gestation presented to Labor and Delivery for LUQ abdominal pain that started the night before. The pain was rated 5/10 in severity, constant and dull in nature, and localized to a single point on her rib. The pain was aggravated by palpation but not with deep inspiration or movement. The patient denied any history of trauma, heavy lifting, or vigorous exercise. Varicella immunoglobulin G was positive on prenatal labs. On physical exam, no gross abnormalities were appreciated, and guarding and rebound tenderness were absent. Preterm labor was ruled out and the fetal heart tracing was reassuring, which ruled against placental abruption. She was discharged home with acetaminophen and cyclobenzaprine for presumed musculoskeletal pain.

The following day, the patient returned for the same pain, now rated 10/10 in severity. The pain was unrelieved by oral and intravenous acetaminophen, ibuprofen, cyclobenzaprine, lidocaine patches, and a combination of aluminum hydroxide, magnesium hydroxide, and simethicone. Given the unusual presentation and severity of the pain, an extensive workup was performed. A complete blood count (CBC), complete metabolic panel (CMP), amylase, lipase, and urine analysis were within normal limits. Electrocardiogram (EKG) exhibited a normal sinus rhythm. Chest x-ray was negative for rib fractures and acute cardiopulmonary disease. Abdominal computed tomography (CT) with intravenous contrast was remarkable for minimal right-sided hydronephrosis and hydroureter, likely related to the patient's gravid uterus and negative for splenic artery aneurysm rupture. Some relief was obtained with hydrocodone/acetaminophen, so she was discharged home with a short regimen of this narcotic.

Later that evening, she presented for increased pain, now described as sharp and unrelieved by hydrocodone/acetaminophen and with new onset of vesicles in her left T6 dermatome (Figures 1 and 2). The patient was diagnosed with herpes zoster (shingles) and started on valacyclovir and gabapentin. On hospital day 1, the pain improved and was associated with pruritis to the area. The patient was discharged home with close outpatient follow-up. Eventually, the patient's shingles resolved without any sequelae, and she delivered a healthy term infant.

Discussion

Diagnostic Imaging

In conclusion, shingles is uncommon in pregnancy but should be considered in the differential diagnosis of pain of unclear origin, especially if the severity of the pain appears to be out of proportion to the physical exam. The differential diagnosis of abdominal pain in pregnancy includes a wide range of causes from cardiac to gastrointestinal and of course, obstetrical etiologies. In cases of severe abdominal pain, indicated imaging should never be withheld because delayed diagnosis of life-threatening medical conditions, such as splenic artery aneurysm rupture, can result in significant harm to both the patient and fetus. Treatment goals involve pain control, antiviral medications, and possibly gabapentin for the prevention of postherpetic neuralgia. Unlike primary VZV infections, shingles rarely affects the fetus. In pregnant patients with severe, localized pain without clear exam findings, herpes zoster should be considered in the differential diagnosis.

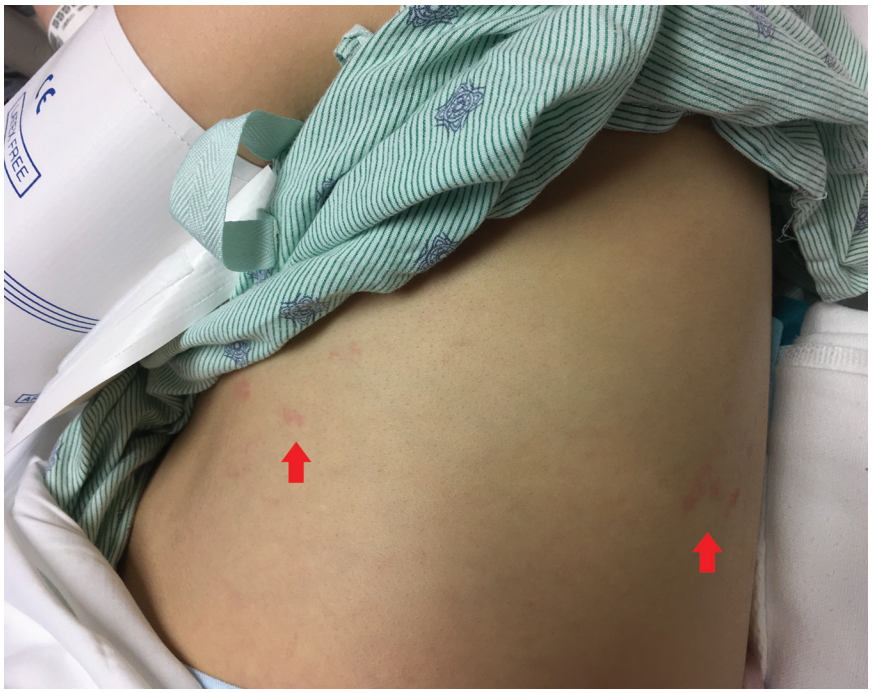

Figure 1. Unilateral rash distributed within the T6 dermatome (arrows).

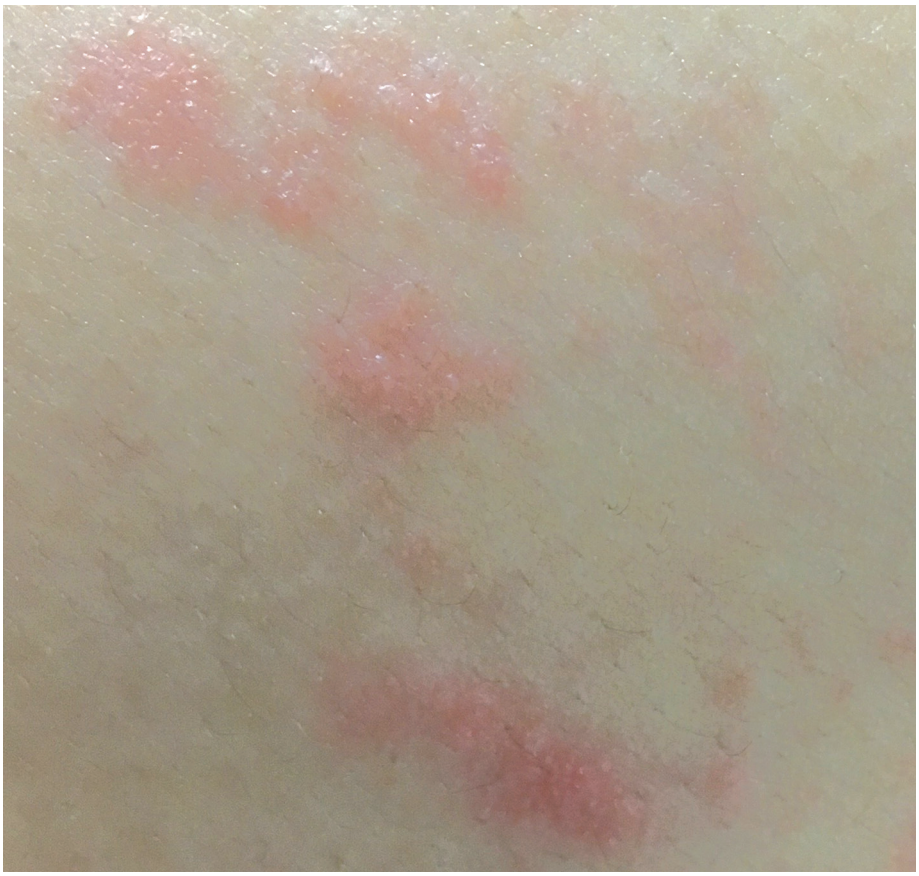

Figure 2. Vesicular appearing lesions.

Conflict of Interest

The authors have no actual or potential conflicts of interest.

Authors' Affiliation:
Department of Obstetrics, Gynecology, and Women's Health,
John A. Burns School of Medicine, University of Hawai'i, Honolulu, HI

Correspondence to:
Jennifer W.H. Wong MD; 1319 Punahou Street, Suite #824,
Honolulu, HI 96826; Email: jwhwong@hawaii.edu

References

1. *Harrison's Principles of Internal Medicine, Nineteenth Edition.* Editors: Kasper DL, Hauser SL, Longo DL, Jameson JL, Loscalzo J. New York City, NY: McGraw-Hill Education. 2015.
2. *Williams Obstetrics, Twenty-Fourth Edition.* Editors: Cunningham FG, Leveno KJ, Bloom SL, Spong CY, Dashe JS, Hoffman BL, Casey BM, Sheffield JS. New York City, NY: McGraw-Hill Education. 2014.
3. Fashner J, Bell AL. Herpes Zoster and Postherpetic Neuralgia: Prevention and Management. *AAFP.* 2011;83(12):1432-1437.
4. *Lexicomp. Drug Information Handbook, Twenty-Sixth Edition.* Hudson, OH: Wolters Kluwer. 2017.
5. *Creasy and Resnik's Maternal-Fetal Medicine: Principles and Practice, Seventh Edition.* Editors: Greene MF, Creasy RK, Resnik R, Iams JD, Lockwood CJ, Moore T. Philadelphia, PA: Elsevier. 2014.
6. *Obstetrics: Normal and Problem Pregnancies, Seventh Edition.* Editors: Gabbe SG, Niebyl JR, Simpson JL, Landon MB, Galan HL, Jauniaux ERM, Driscoll DA, Berghella V, Grobman WA. Philadelphia, PA: Elsevier. 2017.
7. Momma K, Takeuchi H. Constriction of Fetal Ductus Arteriosus by Non-Steroidal Anti-Inflammatory Drugs. *Prostaglandins.* 1983;26(4):631-634.
8. Rullan M, Bulilete O, Leiva A, Soler A, Roca A, Gonzalez-Bals MJ, Lorente P, Llobera J. Efficacy of Gabapentin for Prevention of Postherpetic Neuralgia: Study Protocol for a Randomized Controlled Clinical Trial. *Trials.* 2017;18:24.
9. Lapolla W, DiGiorgio C, Haitz K, Magel G, Mendoza N, Grady J, Lu Wenzshe, Tyring S. Incidence of Postherpetic Neuralgia After Combination Treatment with Gabapentin and Valcyclovir in Patients with Acute Herpes Zoster. *Arch Dermatol.* 2011;147(8):901-907.
10. Harger JH, Ernest JM, Thurnau GR, Moawad A, Thom E, Landon MB, Paul R, Miodovnik M, Dombrowski M, Sibai B, Van Dorsten P, McNellis D. Frequency of Congenital Varicella Syndrome in a Prospective Cohort of 347 Pregnant Women. *Obstet Gynecol.* 2002;100(2):260-265.
11. Enders G, Miller E, Cradock-Watson J, Bolley I, Ridehalgh M. Consequences of Varicella and Herpes Zoster in Pregnancy: Prospective Study of 1739 Cases. *Lancet.* 1994;343(8912):1548-1551.
12. Merck & Co., Inc. Package Insert Zostavax (Frozen). 2017.
13. American College of Obstetricians and Gynecologists. Cytomegalovirus, Parvovirus B19, Varicella Zoster, and Toxoplasmosis in Pregnancy. Practice Bulletin Number 151. *Obstet Gynecol.* 2015;25:1510-1525.
14. Sadat U, Dar O, Walsh S, Varty K. Splenic Artery Aneurysms in Pregnancy – A Systematic Review. *Int J Surg.* 2007;6(3):261-265.
15. Centers for Disease Control and Prevention. Radiation and Pregnancy: A Fact Sheet for Clinicans. 2014.
16. Tamir B, Peleg R. Burning pain from chest to back · allodynia and hyperesthesia · extreme sensitivity at the left T5 dermatome · Dx? *J Fam Pract.* 2015 Jun;64(6):E1-2.
17. Daïen CI, Cohen JD, Jorgensen C. Zoster Cruralgia in a Pregnant Woman. *Joint Bone Spine.* 2009Dec;76(6):724-5.